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09/544,754	04/07/2000	Vijay R. Basani	020496/0004	2321

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EXAMINER
CHANG, JUNGWON

ART UNIT	PAPER NUMBER
2154	12

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>27 February 2004</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-14 and 16-20</u> is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) <u>11</u> is/are allowed.

6)☒ Claim(s) <u>1,2,6-10,12-14 and 16-20</u> is/are rejected.

7)☒ Claim(s) <u>3-5</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All   b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail. Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claim 15 is canceled, and claims 1 and 14 are amended. Claims 1-14 and 16-20

are presented for examination.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1, 2, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Singh et al, "Electing Good Leaders", Journal of Parallel and Distributed

Computing, pp. 184-201, in view of Buchanan et al. (US 6,594,044 B1), hereinafter

referred to as Buchanan.

4.   As to claim 1, Singh discloses the invention substantially as claimed including a

method for selecting a group leader among servers in a multicast network segment (i.e.,

selecting a leader to coordinate some activity in a distributed system; Abstract, page

184) comprising the steps of:

configuring a set of said servers (i.e., nodes a, b, c, d, fig. 1) to participate in

electing a leader (page 185, Definition 2 (Elected Leaders), Example section), each said

server having a corresponding voting priority (i.e., voting with least delay priority or

highest expected connectivity priority (paragraph 7, page 188), TABLE, paragraph 1,

page 186);

determining when a new leader is needed (i.e., when the old leader dies,

paragraph 1, lines 5-7, page 200); and

said set of servers electing one server of said set to become said new leader by

voting (i.e., the leader is the node with the most votes; paragraphs 1 and 11, page 186;

paragraph 5, page 189).

5.   Singh does not specifically disclose voting is performed by sending a leadership

claim message including a priority claim at an interval determined by strength of a claim

a candidate has on becoming the group leader. However, Buchanan discloses voting is

performed by sending a leadership claim message including a priority claim at an

interval (i.e., predetermined time period) determined by strength of a claim a candidate

has on becoming the group leader (306, fig. 3; col. 6, liens 4-9 and 18-27). It would

have been obvious to combine the teachings of Singh and Buchanan because

Buchanan's leadership claim message including a priority claim would improve the

performance of electing a group leader of Singh's system by allowing a new request

server to become a new leader as soon as calculating the new leader having high

priority than the current leader.

6.   As to claim 2, Singh discloses measuring a set of leader selection parameters in

each participant in said set (TABLE, page 186; TABLE, page 189; Definition 2, Example

section, page 185; figs. 1 and 2; 4.1 section, page 188); and calculating the

corresponding voting priority according to said measurements (paragraph 1, page 186;

paragraph 5, page 189, node d is elected as a leader with highest priority).

7.   As to claims 6 and 7, they are rejected for the same reasons set forth in claim 1

above. Singh does not specifically disclose comparing a received priority in any other

claims to leadership with said sent voting priority. However, Buchanan discloses

comparing a received priority in any other claims to leadership with said sent voting

priority (306, fig. 3; col. 6, liens 4-9 and 18-27). It would have been obvious to combine

the teachings of Singh and Buchanan because Buchanan's comparing the priorities

would provide a desired leader for the group.

8.   Claims 3-5 are objected to as being dependent upon a rejected base claim, but

would be allowable if rewritten in independent form including all of the limitations of the

base claim and any intervening claims.

9.   Claims 8-10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Buchanan et al. (US 6,594,044 B1), hereinafter referred to as

Buchanan, in view of Singh et al, "Electing Good Leaders", Journal of Parallel and

Distributed Computing, pp. 184-201.

10.   As to claim 8, Buchanan discloses the invention substantially as claimed,

including a system for determining a group leader among a group of servers (col. 3,

lines 5-7) comprising:

a set of participant servers (O, fig. 1; col. 3, lines 25-26) including at least some

servers capable of participating in electing a group leader (col. 3, lines 5-7 ;

a communication channel from each participant to each other participant (i.e.,

LAN; 116, 118, 120, 121, 127, 131, fig. 1; col. 3, lines 32-45);

a monitor process in each participant to determine which server is the current

group leader (310, 312, fig. 3; col. 6, lines 24-27); and

an election process in each participant and to select a new group leader, said

election process triggered by said monitor process (306, fig. 3; col. 6, lines 18-27).

11.   Buchanan does not specifically disclose calculating a voting priority of said

participant. However, Singh discloses calculating a voting priority of said participant

(i.e., voting with least delay priority or highest expected connectivity priority (paragraph

7, page 188), TABLE, paragraph 1, page 186, paragraph 5, page 189). It would have

been obvious to combine the teachings of Buchanan and Singh because Singh's

calculating the voting priority of each participant would improve reliability of Buchanan's

system by electing the leader based on the accurately calculated voting priority.

12.   As to claims 9, 10 and 12, Buchanan further discloses determining how long

since a group leader alive message has been heard on the communication channel

(i.e., keep alive timer period; col. 6, line 66 – col. 7, line 5); and a trigger adapted to detect that a group leader has not been heard from for a time longer than a threshold time, according to the period of said periodic signal (col. 6, lines 37-38; col. 7, lines 8-14).

13.   As claim 13, it is rejected for the same reasons set forth in claim 8 above.

14.   Claims 14 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buchanan et al. (US 6,594,044 B1), hereinafter referred to as Buchanan, in view of Singh et al, "Electing Good Leaders", Journal of Parallel and Distributed Computing, pp. 184-201, as applied to claims 8-13, further in view of Lim et al. (US 5,938,732).

15.   Lim was cited in a prior Office action dated 4/10/2003 (paper #5).

16.   As to claim 14, it is rejected for the same reasons set forth in claim 8 above. Buchanan and Singh do not specifically disclose each member sending a registration message to said group leader. However, Lim discloses each member sending a registration message to said group leader (col. 5, lines 1-6 and 61-65; col. 6, lines 40-45). It would have been obvious to combine the teachings of Buchanan, Singh and Lim because Lim's sending registration message would allow the group leader to aware of members of its group.

Buchanan and Singh do not specifically disclose said group leader multicasting a

registration report including an identifier corresponding to each registered member.

However, Lim discloses said group leader multicasting a registration report including an

identifier corresponding to each registered member (col. 9, lines 21-31 and 35-44). It

would have been obvious to combine the teachings of Buchanan, Singh and Lim

because Lim's multicasting the registration report would allow all participants of the

group to receive same information simultaneously, thereby sharing the information or

resources with each other.

17.   As to claims 16, 17 and 19, Buchanan further discloses configurable interval has

expired (i.e., time-out; col. 6, lines 13-15 and 37-38; col. 7, lines 8-14).

18.   As to claims 18 and 20, Buchanan further discloses registration requests

includes at least some identification information selected from the set of: a server's IP

address, a server's name (O_1-O_N, fig. 1; col. 3, lines 25-26), a server's port number

(P1-P3, fig. 1; col. 3, lines 27-45), and a secret key.

19.   Claim 11 is allowed.

Conclusion

20.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure:

Auerbach et al, patent 5,634,011, Frederickson Greg, "Electing a Leader in a
Synchronous Ring, Journal of the Association for Computing Machinery, Vol. 34, No. 1,
Jan. 1987, pp. 98-115 disclose a system and method for electing a group leader.

21.   Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Jungwon Chang whose telephone number is (703)305-
9669. The examiner can normally be reached on 9:30-6:00 (Monday-Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, John A Follansbee can be reached on (703)305-8498. The fax phone
number for the organization where this application or proceeding is assigned is 703-
872-9306.

Information regarding the status of an application may be obtained from the
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you have questions on access to the Private PAIR system, contact the Electronic
Business Center (EBC) at 866-217-9197 (toll-free).

Jungwon Chang
March 18, 2004

JOHN FOLLANSBEE
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